UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,426	12/04/2003	Detlev Marpe	SCHO0160	9446

22862 7590 08/27/2007

GLENN PATENT GROUP
3475 EDISON WAY, SUITE L
MENLO PARK, CA 94025

EXAMINER	
GE, YUZHEN	

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
08/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/728,426	MARPE ET AL.	
	Examiner	Art Unit	
	Yuzhen Ge	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 12, 17-18 and 19-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1, 12, 22-23 and 24-25 of copending Application No. 10/769,403 in view of Marpe et al ("Final CABAC Cleanup", JVT of ISO/IEC MPEG&ITU-T VCEG, JVT-F039, cited by IDS) as explained by Admitted-Prior-Art (pages 1-6 in the section of "Description of the prior art" of the specification and Fig. 19). Although the conflicting claims are not identical, they are not patentably distinct from each other because

- Claims 1 and 1 of the copending application recite common subject matter; So are the following claims and their corresponding claims of the copending application listed in an order pair notation: (12, 12), (17, 24), (18, 25), (19, 22), (20, 23).

- Marpe et al teach the elements that are not common in the claims of this application and copending application.
- Whereby claims 1, 12, and 17-20, which recite the open ended transitional phrase "comprising", do not preclude the additional elements recited by claims 1, 12 and 22-25 of the copending application, and
- Whereby the elements of claims 1, 12, and 17-20 are obvious over the copending claims 1, 12, and 22-25 in view of Marpe et al.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

3. Claims 1, 12, 17-18 and 19-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1, 12, 23-24 and 25-26 of copending Application No. 10/677,886 in view of Marpe et al ("Final CABAC Cleanup", JVT of ISO/IEC MPEG&ITU-T VCEG, JVT-F039, cited by IDS) as explained by Admitted-Prior-Art (pages 1-6 in the section of "Description of the prior art" of the specification and Fig. 19). Although the conflicting claims are not identical, they are not patentably distinct from each other because

- Claims 1 and 1 of the copending application recite common subject matter; So are the following claims and their corresponding claims of the copending application listed in an order pair notation: (12, 12), (17, 23), (18, 24), (19, 25), (20, 26).
- Marpe et al teach the elements that are not common in the claims of this application and copending application.

- Whereby claims 1, 12 and 17-20, which recite the open ended transitional phrase "comprising", do not preclude the additional elements recited by claims 1, 12, 23-26 of the copending application, and
- Whereby the elements of claims 1, 12, and 17-20 are obvious over the copending claims 1, 12, and 23-26 in view of Marpe et al.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

5. The disclosure is objected to because of the following informalities: the "Short Description of the Drawings" seems to enclose the whole detailed description. A title of "Detailed Description of the Invention" should be put in between the description of the drawings and the detailed description.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 14 recites the limitation "the step of investigating" in claim 12. There is insufficient antecedent basis for this limitation in the claim. The examiner will interpret "the step of investigating" as "the step of assigning context model".

Claim Rejections - 35 USC § 101

7. Claims 17-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 17-18 define a computer program embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed a computer program can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Currently in TC 2600, it is required explicitly to include "computer-readable medium", "encoded" (or "storing", "embodied with a", "encoded with a", "having a stored", "having an encoded"), and "computer program" in the claim language to make it explicitly a statutory subject matter.

Claim Rejections - 35 USC § 102

8. Claims 1-20 are rejected under 35 U.S.C. 102(a) as being anticipated by Marpe et al ("Final CABAC Cleanup", JVT of ISO/IEC MPEG&ITU-T VCEG, JVT-F039, cited by IDS) as explained by Admitted-Prior-Art (Pages 1-6 in the section of "Description of the prior art" and

Fig. 19 or paragraphs [0004-0015] and Fig. 19 of the publication for this application US 2005/0123207, CABAC is explained by the Admitted-Prior-Art).

Regarding claim 1, Marpe et al teach a method for encoding a video frame or picture, the method comprising:

dividing up the video frame or the picture in portions of a first type and portions of a second type, wherein the portions of the first type are associated with a first scanning pattern, and the portions of the second type are associated with a second scanning pattern that is different from the first scanning pattern (Page 1, alternate scan is used for adaptive field coding and zig-zag scan is used for adaptive frame coding, Fig. 19 and pages 3-6 of the Admitted-Prior-Art);

transforming data corresponding to a predetermined of the portions of the video frame or picture into a two-dimensional array of transform coefficients, wherein a scanning order is defined among the transform coefficients by the scanning pattern of the predetermined portion, the scanning order assigning each transform coefficient a unique scanning position (Pages 1-2 and 6, inherent that MPEG uses DCT and scanning is perform, Fig. 19 and pages 3-6 of specification of the Admitted-Prior-Art);

precoding a predetermined of the transform coefficients in order to obtain a transform data unit (Pages 1-2 and 6, each frame is divided into slices and each slice is divided into macroblocks/blocks, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art);

choosing one of a first and a second set of context models, depending on as to whether the predetermined portion is a portion of a type being associated with the first or the second

scanning pattern, the first and the second set being different to each other (Pages 1-2 and 6, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art);

assigning one context model of the chosen one of the first and the second set of context models to the transform data unit based on the scanning position assigned to the predetermined transform coefficient, wherein each context model is associated with a different probability estimation (Pages 1-2 and 6, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art); and

arithmetically encoding the transform data unit or a sub-unit thereof into a coded bit stream based on the probability estimation with which the assigned context model is associated (Pages 1-2 and 6, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art).

Regarding claim 2, Marpe et al teach the method of claim 1, wherein the step of arithmetically encoding is adapted to arithmetically encode the subunit, and wherein the step of precoding comprises:

checking as to whether the predetermined transform coefficient is significant (Page 2, Section 2, CtxSigCoeffFrm is set and it is implicit that checking is performed);

if the predetermined transform coefficient is significant,

setting a binary significance flag to a first value; and

if the predetermined transform coefficient is not significant, setting the binary significance flag to a second value being different to the first value, wherein the significance flag is comprised by the sub-unit of the transform data unit (Page 2, Section 2, depending whether the coefficient is significant, this flag is set).

Regarding claim 3, Marpe et al teach the method of claim 1, wherein the step of arithmetically encoding is adapted to arithmetically encode the subunit, and wherein the step of preceding further comprises:

checking as to whether the predetermined transform coefficient is significant (Pages 1-2 and 6, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art);

if the predetermined transform coefficient is significant, checking as to whether the predetermined transform coefficient is the last significant transform coefficient among the transform coefficients having assigned a higher scanning position than the predetermined transform coefficient, in order to obtain a check result (Pages 1-2 and 6, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art);

if the check result is positive, setting a binary last significant coefficient flag to a third value (Pages 1-2 and 6, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art);

if the check result is negative, setting the binary last significant coefficient flag to a fourth value, the fourth value being different to the third value, wherein the last significance coefficient flag is comprised by the sub-unit of the transform data unit (Pages 1-2 and 6, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art).

Regarding claim 4, Marpe et al teach the method of claim 1, wherein the step of preceding is comprised by a step of preceding the transform coefficients, the step of preceding the transform coefficients further comprising the following sub-steps:

a) for the first transform coefficient in scanning order, checking as to whether same is significant (Pages 1-2 and 6, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art);

b) if the first transform coefficient is significant, setting a binary significance flag to a first value; c) if the predetermined transform coefficient is not significant, setting the binary significance flag to a second value being different to the first value, d) if the first transform coefficient in scanning order is significant, checking as to whether same is the last significant transform coefficient among the transform coefficients having assigned a higher scanning position than same transform coefficient, in order to obtain a check result; e) if the check result is positive, setting a binary last significant coefficient flag of the first transform coefficient in scanning order to a third value; f) if the check result is negative, setting the binary last significant coefficient flag to a fourth value, the fourth value being different to the third value, and g) repeating steps a)-f) for the next transform coefficient in scanning order; h) for all transform coefficients, the significance flag of which has the first value, coding a data value indicating the transform coefficient into the coded bit stream, wherein, for all transform coefficients, the significance flag of which has the first value, the last significant coefficient flag, the significance flag, and the data value a transform data unit, and, for the remaining transform coefficients, the significance flag forms the transform data unit (Pages 1-2 and 6, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art)..

Regarding claim 5, Marpe et al teach the method of claim 1, wherein the data corresponding to the predetermined portion concerns a kind of pixel information, the kind of pixel information

being selected of brightness, colour tone, saturation and chrominance (Pages 1-2 and 6, also inherent from MPEG, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art).

Regarding claim 6, Marpe et al teach the method of claim 1, wherein the data corresponding to the predetermined portion defines differences between the video frame or picture and a prediction of the video frame or picture with respect to the predetermined portion (Pages 1-2 and 6, also inherent from MPEG, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art).

Regarding claim 7, Marpe et al teach the method of claim 1, wherein the video frame or picture is composed of picture samples the picture samples belonging either to a first or a second field being captured at different time instants, wherein the method comprises:

grouping picture samples belonging to either the first or second field and contained in the predetermined portion of the video frame or picture, to obtain the data corresponding to the predetermined portion or data which the data corresponding to the predetermined portion is based upon, if the predetermined portion is a portion of the first type, or grouping picture samples contained in one of two halves of the predetermined portion and comprising both, picture samples belonging to the first field and picture samples belonging to the second field, to obtain the data corresponding to the predetermined portion or data which the data corresponding to the predetermined portion is based upon, if the predetermined portion is a portion of the second type (Pages 1-2 and 6, also inherent from MPEG, field coding is one type and frame coding is another type, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art).

Regarding claim 8, Marpe et al teach the method of claim 1, wherein the picture samples belonging to the first field and the picture samples belonging to the second field are interlaced so that picture samples as grouped if the predetermined portion is a portion of the first type, have a greater pitch than picture samples as grouped if the predetermined portion is a portion of the second type (Pages 1-2 and 6 and inherent from MPEG, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art).

Regarding claim 9, Marpe et al teach the method of claim 1, wherein the step of arithmetically encoding comprises the following steps: deducing a current arithmetic code interval in accordance with the probability estimation with which the assigned context model is associated to one of two subintervals into which the probability estimation with which the assigned context model is associated separates the current arithmetic code interval, in order to obtain a reduced current arithmetic coding interval, wherein the coded bit stream depends on the reduced current arithmetic coding interval (Pages 1-2 and 6 and inherent from arithmetic coding and MPEG, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art).

Regarding claim 10, Marpe et al teach the method of claim 1, further comprising: adapting the probability estimation with which the assigned context model is associated based on the syntax element (Pages 1-2 and 6 inherent from MPEG and CABAC defined in MPEG-4, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art).

Regarding claim 11, Marpe et al teach the method of claim 1 further comprising: encoding into the bit stream a flag indicating as to whether the predetermined portion is a portion of the first type or a portion of the second type (Page 2, Section 2.2).

Regarding claim 12, Marpe et al teach a method for decoding a transform data unit or a sub-unit thereof from a coded bit stream, the transform data unit being a precoded version of a predetermined transform coefficient of transform coefficients which are the result of a transformation of data corresponding to a predetermined portion of portions of a video frame or picture, the portions being either a portion of a first type being associated with a first scanning pattern or a portion of a second type being associated with a second scanning pattern, the method comprising the following steps:

choosing one of a first and a second set of context models, depending on as to whether the predetermined portion is a portion of a type being associated with the first or the second scanning pattern, the first and the second set being different to each other (Pages 1-2 and 6, inherent from MPEG that decoding is the reverse process of encoding, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art);

assigning one context model of the chosen one of the first and the second set of context models to the transform data unit or the sub-unit thereof based on the scanning position assigned to the predetermined transform coefficient, wherein each context model is associated with a different probability estimation (Pages 1-2 and 6, inherent from MPEG that decoding is the reverse process of encoding, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art); and

arithmetically decoding the transform data unit or the sub-unit thereof from the coded bit stream based on the probability estimation with which the assigned context model is associated (Pages 1-2 and 6, inherent from MPEG that decoding is the reverse process of encoding).

Regarding claim 13, Marpe et al teach the method of claim 12, wherein the method is for decoding the sub-unit of the transform data unit, and the sub-unit is a significance flag having a first value if the predetermined transform coefficient is significant and has a second value if the predetermined transform coefficient is not significant, the first value being different from the second value (Pages 1-2 and 6, inherent from MPEG that decoding is the reverse process of encoding, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art).

Regarding claim 14, Marpe et al teach the method of claim 12, wherein the step of investigating comprises the step of investigating a syntax element associated with the neighbouring portion (Pages 1-2 and 6, inherent from context model in MPEG, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art).

Regarding claim 15, Marpe et al teach the method of claim 12, wherein the step of arithmetically decoding comprises the following steps: checking as to whether an arithmetic codeword value indicated by the coded bit stream falls into a first or a second of two subintervals, into which the probability estimation with which the assigned context model is associated separates a current arithmetic code interval, wherein a value of the transform data unit or the sub-unit thereof depends on the subinterval into which the arithmetic codeword value

falls (Pages 1-2 and 6, inherent from arithmetic coding in MPEG, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art).

Regarding claim 16, Marpe et al teach the method of claim 12, further comprising: adapting the probability estimation with which the assigned context model is associated based on the transform data unit or the sub-unit thereof (Pages 1-2 and 6, inherent from CABAC, context-based adaptive binary arithmetic coding, Fig. 19 and pages 3-6 of the specification of the Admitted-Prior-Art).

Claims 17-18 are the corresponding computer program claims of claims 1 and 12. Marpe et al teach a computer program (Pages 1-2 and 6, implicit from the result section and inherent from the fact that MPEG is a computer implemented method, Fig. 19 and pages 1-6 of the specification of the Admitted-Prior-Art). Thus Marpe et al teach claims 17-18 as evidently explained in the above-cited passages.

Claims 19-20 are the corresponding computer program claims of claims 1 and 12. Marpe et al teach an apparatus (Pages 1-2 and 6, implicit from the result section and inherent from MPEG that a MPEG encoder and decoder is an apparatus, Fig. 19 and pages 1-6 of the specification of the Admitted-Prior-Art). Thus Marpe et al teach claims 19-20 as evidently explained in the above-cited passages.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuzhen Ge whose telephone number is 571-272 7636. The examiner can normally be reached on 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Yuzhen Ge
Examiner
Art Unit 2624

WENPENG CHEN
PRIMARY EXAMINER

5/30/07